This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

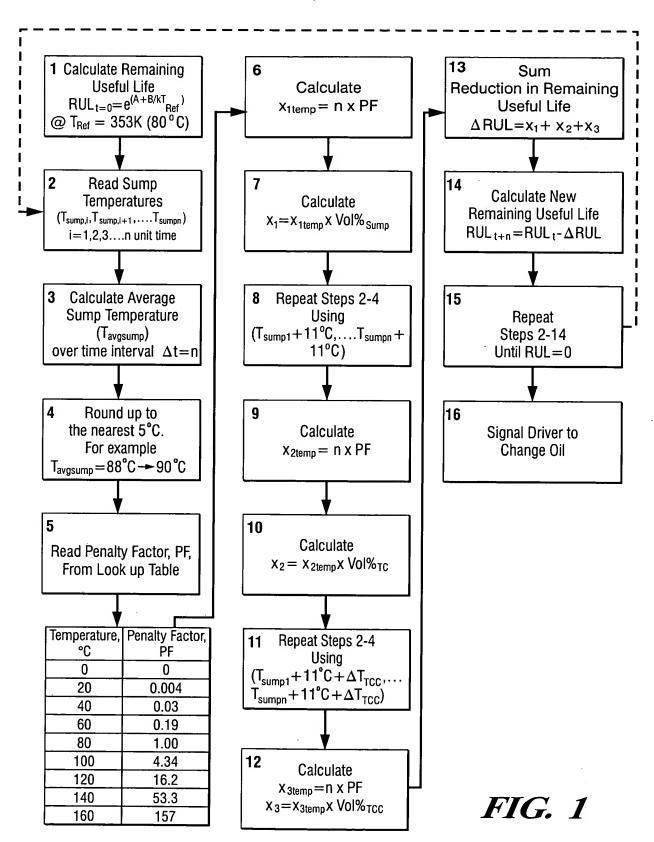
Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.





1

Calculate Total Number of Shifts at Reference Conditions at time zero

$$\begin{aligned} & \text{TNS}_{\text{ref}} = \text{RNS}_{\text{t=0,ref}} \\ = & a_0 + a_1 T_{\text{ref}} + a_2 E_{\text{ref}} + a_3 T_{\text{ref}} E_{\text{ref}} + \dots \end{aligned}$$

2a

Read Average Sump Temperature, Tavgsump. over Time Interval n

2

2b.

Read Number of Shift Events

No. 1 - 2: P_1 = upshift, P_2 = downshift

No. 2 - 3: $Q_1 = \text{upshift}$, $Q_2 = \text{downshift}$

No. 3 - $4:R_1 = \text{upshift}, R_2 = \text{downshift}$

No. 4 - 5: $S_1 = \text{upshift}$, $S_2 = \text{downshift}$

No. 5 - 6: $T_1 = \text{upshift}$, $T_2 = \text{downshift}$

Calculate Reduction in Remaining Number of Shifts

$$\Delta RNS = \begin{bmatrix} P_{1}^{*} \frac{TNS_{ref}}{TNS(T_{avgsump}, E_{i})} + Q_{1}^{*} \frac{TNS_{ref}}{TNS(T_{avgsump}, E_{i+1})} + R_{1}^{*} \frac{TNS_{ref}}{TNS(T_{avgsump}, E_{i+2})} + \\ S_{1}^{*} \frac{TNS_{ref}}{TNS(T_{avgsump}, E_{i+3})} + T_{1}^{*} ("") + P_{2}^{*} ("") + ... + T_{2}^{*} ("") \end{bmatrix}$$

Where E = Shift Energy in kJ and i = 1 - 2, 2 - 3, 3 - 4, 4 - 5, 5 - 6, 2 - 1, 3 - 2, 4 - 3, 5 - 4, 6 - 5 shift events

Calculate Remaining Number of Shifts at time t+n,

 $RNS_{t+n} = RNS_t - \Delta RNS_{t-t+n}$

5. Repeat Steps 2-4 until RNS=0

FIG. 2

6. Signal Driver to Change Oil